

WHAT IS CLAIMED IS:

Subj

1 A process for producing a fibrous material for a member with which an ink-jet ink comes into contact,

including the step of melt spinning a thermoplastic resin,

5 the process comprising the step of:

subjecting a spun yarn to a glycol treatment in which the spun yarn is contacted with a glycol added with ethylene oxide.

10 2. The process according to Claim 1, wherein the glycol treatment is at least one treatment selected from among

(1) a treatment for applying the glycol to the yarn;

(2) a treatment for replacing a releasable component

15 to be possibly released into an ink in the yarn by the glycol to reduce an amount of the component; and

(3) a treatment for dissolving or emulsifying the releasable component in the yarn in the glycol.

20 3. The process according to Claim 1 or 2, which comprises steps of:

treating a melt spun yarn with a spinning oil,

stretching the resultant unstretched yarn, and

treating the stretched yarn with a finishing oil.

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4. The process according to Claim 3, wherein the glycol treatment is conducted as at least one step

selected from among

- a) a step of contacting a spun yarn with the glycol which is contained in a spinning oil at the time of melt spinning to apply the glycol to the spun yarn;
- 5 b) a step of contacting an unstretched yarn with a treating agent containing the glycol after melt spinning;
- c) a step of contacting an unstretched melt spun yarn with a treating agent containing the glycol during a step of stretching the unstretched yarn;
- 10 d) a step of contacting a stretched yarn with the glycol which is contained in a finishing oil; and
- e) a step of contacting a yarn obtained after the stretching with a treating agent containing the glycol.
- 15 5. The process according to Claim 4, wherein the content of the glycol in the spinning oil in the step a) or in the finishing oil in the step d) is at least 80 % by weight.

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6. The process according to any one of Claims 2 to 4, wherein the component to be possibly released into an ink in the yarn is at least one of additives contained in the thermoplastic resin which constitutes the yarn and components derived from the spinning oil and finishing oil attached to the yarn.

25 *Claim 6*
7. The process according to ~~any one of Claims 1 to~~

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cont.

~~6. wherein an amount released upon contact with an ink-jet ink of components derived from the oils, which are to be possibly released into the ink-jet ink, is at most 100 ppm based on the weight of the ink.~~

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8. The process according to Claim 7, wherein the components to be possibly released are components detected by using at least one of silicon, phosphorus and potassium as an index.

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9. The process according to ~~any one of Claims 1 to 8,~~ wherein the pH of the ink-jet ink is from at least 6 to lower than 11.

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10. The process according to ~~any one of Claims 3 to 9,~~ wherein the finishing oil is a finishing oil for filament, multifilament, tow and staple fiber.

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11. The process according to ~~any one of Claims 1 to 10,~~ wherein the glycol is an acetylene glycol having a triple bond, in which it has at least one side chain at a central site of a linear main chain, and ethylene oxide is added to the side chain.

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12. The process according to Claim 11, wherein the glycol exhibits a nonionic surface activity and has a hydrophilic group.

13. The process according to Claim 11, wherein the glycol is an ethylene oxide adduct of 2,4,7,9-tetramethyl-5-decyn-4,7-diol, in which the number of moles of ethylene oxide added is from 3 to 30.

14. The process according to ~~any one of Claims 4 to 13~~, wherein the treating agent containing the glycol is composed of the glycol alone.

15. The process according to ~~any one of Claims 1 to 14~~, wherein the thermoplastic resin is at least one selected from the group consisting of polyethylene, polypropylene, ethylene-propylene copolymers, polymethylpentene and ethylene-olefin copolymers.

16. The process according to ~~any one of Claims 1 to 15~~, wherein the thermoplastic resin is a resin for obtaining a heat-adhesive fibrous material.

17. The process according to ~~any one of Claims 1 to 16~~, wherein the glycol is combined with a lubricant for a cutter blade for fiber or a lubricant for a sliding part of a mold for a hot-molded material.

18. A fibrous material produced in accordance with ~~any one of Claims 1 to 17~~ the production process according to ~~any one of Claims 1 to~~

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19. An ink-absorbing member which can deliverably hold an ink-jet ink therein, wherein the ink-absorbing member is composed principally of the fibrous materials according to Claim 18.

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20. A fibrous material composed of a thermoplastic resin, to which a glycol added with ethylene oxide is applied.

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21. The fibrous material according to Claim 20, wherein the thermoplastic resin is at least one selected from the group consisting of polyethylene, polypropylene, ethylene-propylene copolymers, polymethylpentene and ethylene-olefin copolymers.

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22. The fibrous material according to Claim 20 or 21, wherein the thermoplastic resin is a resin for obtaining a heat-adhesive fibrous material.

Sub B57 *A* *x* *claim 22*

23. The fibrous material according to any one of Claims 20 to 22, wherein the glycol is acetylene glycol having a triple bond, in which it has at least one side chain at a central site of a linear main chain, and ethylene oxide is added to the side chain.

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cont.

~~24. The fibrous material according to Claim 23,
wherein the glycol exhibits an anionionic surface activity
and has a cloud point of at least 65°C.~~

5 25. The fibrous material according to Claim 23,
wherein the glycol is an ethylene oxide adduct of 2,4,7,9-
tetramethyl-5-decyn-4,7-diol, in which the number of moles
of ethylene oxide added is from 3 to 30.

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~~26. A fibrous material composed of a thermoplastic
resin, wherein an amount released upon contact with an
ink-jet ink of releasable components derived from
treatment oils, which are to be possibly released into the
ink-jet ink, is at most 100 ppm based on the weight of the
15 ink.~~

20 27. The fibrous material according to Claim 26,
wherein the components to be possibly released are
components detected by using at least one of silicon,
phosphorus and potassium as an index.

25 28. The fibrous material according to Claim 26 or
27, wherein the thermoplastic resin is at least one
selected from the group consisting of polyethylene,
polypropylene, ethylene-propylene copolymers,
polymethylpentene and ethylene-olefin copolymers.

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29. The fibrous material according to ~~any one of~~
~~Claims 26 to 28,~~ wherein the thermoplastic resin is a
resin for obtaining a heat-adhesive fibrous material.

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30. An ink-absorbing member which can deliverably hold an ink-jet ink therein, wherein the ink-absorbing member is composed principally of the fibrous materials according to ~~any one of Claims 20 to 29.~~

10 31. A process for treating an ink-absorbing member which can deliverably hold an ink-jet ink therein, the process comprising the steps of:

15 treating a molding comprising a fibrous material composed of a thermoplastic resin with a treating agent containing a glycol added with ethylene oxide.

32. The process according to Claim 31, wherein the glycol is an acetylene glycol having a triple bond, in which it has at least one side chain at a central site of 20 a linear main chain, and ethylene oxide is added to the side chain.

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25 33. The process according to Claim 32, wherein the glycol exhibits a nonionic surface activity and has a cloud point of at least 65°C.

glycol is an ethylene oxide adduct of 2,4,7,9-tetramethyl-5-decyn-4,7-diol, in which the number of moles of ethylene oxide added is from 3 to 30.

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~~35. The process according to any one of Claims 31 to 34, wherein the treating agent containing the glycol is composed of the glycol alone.~~

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~~36. The process according to any one of Claims 31 to 35, wherein the glycol is used in combination with an aqueous solution of an alkali.~~

~~37. The process according to Claim 36, wherein the aqueous solution of the alkali is an aqueous solution of sodium hydroxide, potassium hydroxide or lithium hydroxide.~~

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~~38. The process according to any one of Claims 31 to 37, wherein the thermoplastic resin is at least one selected from the group consisting of polyethylene, polypropylene, ethylene-propylene copolymers, polymethylpentene and ethylene-olefin copolymers.~~

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~~39. The process according to any one of Claims 31 to 38, wherein the thermoplastic resin is a resin for obtaining a heat-adhesive fibrous material.~~

Claim 39

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40. The process according to ~~any one of Claims 31 to 39~~, wherein an amount released upon contact with an ink-jet ink of components derived from treatment oils attached to the fibrous material, which are to be possibly released into the ink-jet ink, is reduced to at most 100 ppm based on the weight of the ink.

41. The process according to Claim 40, wherein the components to be possibly released are detected by using at least one of silicon, phosphorus and potassium as an index.

42. An ink-absorbing member treated in accordance with the treatment process according to ~~any one of Claims 31 to 41~~.

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43. An ink-absorbing member which comprises a fibrous material composed of a thermoplastic resin and can deliverably hold an ink-jet ink therein, wherein an amount released upon contact with an ink-jet ink of releasable components derived from treatment oils attached to the fibrous material, which are to be possibly released into an ink-jet ink, is at most 100 ppm based on the weight of the ink.

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detected by using at least one of silicon, phosphorus and potassium as an index.

5 45. The ink-absorbing member according to Claim 43 or 44, wherein the thermoplastic resin is at least one selected from the group consisting of polyethylene, polypropylene, ethylene-propylene copolymers, polymethylpentene and ethylene-olefin copolymers.

10 46. The ink-absorbing member according to any one of Claims 43 to 45, wherein the thermoplastic resin is a resin for obtaining a heat-adhesive fibrous material.

Claim 45

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15 47. An ink tank container for ink-jet head comprising an ink chamber having an opening part communicating with the air and an ink feed opening connected to the ink-jet head, wherein the ink-absorbing member according to Claims 19, 30 and 42 to 46 is fitted 20 within a region including the ink feed opening in the ink chamber.

25 48. The ink tank container according to Claim 47, wherein the ink-absorbing member is provided in contact with the ink feed opening.

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49. An ink tank container for ink-jet head comprising an ink chamber having an opening part

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communicating with the air, and a connecting chamber for head, which communicates with the ink chamber and is adapted to feed an ink from the ink chamber to an ink-jet head through a connecting opening to the ink-jet head, wherein the ink-absorbing member according to Claims 19, 5 30 and 42 to 46 is fitted within the connecting chamber for head.

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50. The ink tank container according to Claim 49,
10 wherein the ink-absorbing member is provided in contact
with the ink feed opening.

51. An ink tank in which an ink-jet ink is charged
into the ink chamber of the ink tank container according
15 to any one of Claims 47 to 50.

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52. An ink-jet cartridge comprising the ink tank
according to Claim 51 and an ink-jet head for ejecting an
ink contained in the ink tank on a recording medium to
20 conduct recording.

53. An ink-jet apparatus comprising the ink-jet
cartridge according to Claim 52 and a carriage on which
the ink-jet cartridge is detachably mounted.

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54. A treating process for regenerating an ink-
absorbing member for ink-jet composed principally of a

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~~fibrous material, the process comprising the step of:
treating the ink-absorbing member with a residual
ink held therein with a treating agent containing a glycol
added with ethylene oxide.~~

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55. The process according to Claim 54, wherein the
glycol is an acetylene glycol having a triple bond, in
which it has at least one side chain at a central site of
a linear main chain, and ethylene oxide is added to the
10 side chain.

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56. The process according to Claim 55, wherein the
glycol exhibits nonionic surface activity and has a cloud
point of at least 65°C.

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57. The process according to Claim 55, wherein the
glycol is an ethylene oxide adduct of 2,4,7,9-tetramethyl-
5-decyn-4,7-diol, in which the number of moles of ethylene
oxide added is from 3 to 30.

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58. The process according to any one of Claims 54 to
57, wherein the treating agent containing the glycol is
composed of the glycol alone.

25 59. The process according to any one of Claims 54 to
58, wherein the glycol is used in combination with an
aqueous solution of an alkali.

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Claim 58

60. The process according to Claim 59, wherein the aqueous solution of the alkali is an aqueous solution of sodium hydroxide, potassium hydroxide or lithium hydroxide.

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Claim 60

61. The process according to ~~any one of Claims 54 to 60~~, wherein the thermoplastic resin is at least one selected from the group consisting of polyethylene, polypropylene, ethylene-propylene copolymers, polymethylpentene and ethylene-olefin copolymers.

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62. The process according to ~~any one of Claims 54 to 61~~, wherein the fibrous material is a heat-adhesive fibrous material.

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63. The process according to ~~any one of Claims 54 to 62~~, wherein an amount released upon contact with an ink-jet ink of components derived from treatment oils attached to the fibrous material, which are to be possibly released 20 into the ink-jet ink, is reduced to at most 100 ppm based on the weight of the ink.

64. The process according to Claim 63, wherein the components to be possibly released are detected by using 25 at least one of silicon, phosphorus and potassium as an index.

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